TEROS 10
Simple Soil Water Content Sensor

Large sensor networks can make a giant hole in the research budget, especially because many soil moisture sensors have reliability issues. Plus, traditional sensors force you to choose between accuracy and affordability. Not anymore. The ultra-robust TEROS 10 delivers scientific accuracy and reliability at a price that makes large sensor networks economically practical.

Everything you need. Nothing you don’t.

The TEROS 10 soil water content sensor is a ruggedized version of our basic, no-frills soil moisture sensor. Its 70-MHz frequency minimizes salinity and textural effects, making it accurate in most soil or soilless media. With a tough, epoxy body, the TEROS 10 is designed to withstand some of the harshest field conditions, which means problem-free measurements over the longevity of your research. In fact, we’re so confident about the long life of our TEROS sensor line, we’ve increased our standard warranty from one to three years.

70 MHz frequency

Long-lasting precision that’s short on cost

The TEROS 10 sensor lets you characterize your site with sensors at multiple depths and locations, even on a tight budget. It’s built to last longer in the field under harsh conditions. No more worrying about surprise data gaps due to failed sensors. It’s one of our toughest soil moisture sensors, and its body withstands difficult environments for up to 10 years. Ideal for large sensing networks, it is sensitive to small VWC changes across the entire range of soil and substrate water content and can be installed in anything from dry desert soils to very wet peat. Not only that, the TEROS 10 has very low power consumption and a high resolution.

Volumetric Water Content

Range

Mineral Soil Calibration: 0.0000 – 0.6400 m^3/m^3

Soilless Media Calibration: 0.0000 – 0.7000 m^3/m^3

Apparent Dielectric Permittivity (εa): 1 (air) to 80 (water)

NOTE: The VWC range is dependent on the media the sensor is calibrated to. A custom calibration will accommodate the necessary ranges for most substrates.

Resolution

0.0010 m^3/m^3

Accuracy

Mineral Soil Calibration: ±0.03 m^3/m^3 typical in mineral soils that have solution EC <8 dS/m

Soilless Media Calibration: ±0.05 m^3/m^3 typical in media that has a solution EC <8 dS/m

Medium Specific Calibration: ±0.01–0.02 m^3/m^3 in any porous medium

Apparent Dielectric Permittivity (εa): 1–40 (soil range) , ±1 εa (unitless) 40–80, 15% of measurement

Measurement Specifications

Dielectric Measurement Frequency

70 MHz

Measurement Volume

Communication Specifications

Output

1,000 – 2,500 mV

Data Logger Compatibility

Data acquisition systems capable of switched 3.0–15 VDC excitation and single-ended voltage measurement at greater than or equal to 12-bit resolution.

Physical Specifications

Dimensions

Length: 5.1 cm (2.02 in)

Width: 2.4 cm (0.95 in)

Height: 7.5 cm (2.95 in)

Needle Length
5.4 cm (2.11 in)

Operating Temperature Range
Minimum: -40.00 °C

Typical: NA

Maximum: 60.00 °C

NOTE: Sensors may be used at higher temperatures under certain conditions; Contact Customer Support for assistance.

Cable Length
5 m (standard) 40 m (maximum custom cable length)

NOTE: Contact Customer Support if a nonstandard cable length is needed.

Cable Diameter
0.165 ± .004 (4.20 ± .10 mm) with min. jacket of .030 (.76 mm)

Connector Types
3.5-mm stereo plug connector or stripped and tinned wires

Stereo Plug Connector Diameter 3.5 mm

Conductor Gauge
22 AWG/24 AWG drain wire

Electrical and Timing Characteristics

Supply Voltage (VIN to GND)
Minimum: 3.0 VDC

Typical: NA

Maximum: 15.0 VDC

Measurement Duration
Minimum: 10 ms

Typical: NA

Maximum: NA

Other

Compliance
EM ISO/IEC 17050:2010 (CE Mark)
2014/30/EU 2011/65/EU
EN61326-1:2013 EN55022/CISPR 22

EN 55011:2016/A1:2017 (GROUP 1, CLASS A-RCM mark)